



What is typical?

Instructions

The following article was written by Jessica Green for the school newsletter. She has used the random sampler to take a sample of 100 Australian Year 8 boys. Jessica is not known for attention to detail and often makes mistakes.

Year Eight Boys Are Interesting. by Jessica Green

The data from a survey of Australian students has just been released. Students from all over Australia answered a series of questions about themselves. We can now have a look at what they said.

I was interested in writing this article about boys my age, so I took a sample of 100 Year 8 boys from the CensusAtSchool Random sampler.

The average time it takes for Year 8 boys to get to school is 21 minutes. The longest time was 80 minutes. The shortest time was 0 minutes. Most boys took 20 minutes to get to school, and the median is also 20 minutes.

I was surprised to find that the vast majority of the Year 8 boys did speak a language other than English at home. This is because most of Australia is like our school, an inner city suburb with a high number of migrant families.

The older boys have more jobs than younger boys.

Other interesting facts are that 60% have their own mobile phone. 5% were born in September. The average height of a year 8 boy is 168 cm and they have 3 pets each.

Task One: Length of time for travelling to school

- 1.** Look at Jessica's observations on travel time. Do you have a strong feeling as to whether or not this statement is correct? Why?

You do not have access to Jessica's data to check her claims, but you can take a random sample to investigate how students travel to school.

- 2.** Go to the CensusAtSchool [Random Sampler](#) and request a sample of Year 8 boys. The sample size is for you to choose (suggest at least 100).
- 3.** Construct a summary table that shows the mean (average), median (middle value), mode (most common number), maximum and minimum values for time that students take to travel to school.
(Hint: It will be easier if you sort the data from smallest to largest values first using the SORT function in Excel. If you're good with Excel, you can use the MEAN, MEDIAN, MODE, MAX and MIN functions.)
- 4.** Are the values associated with your sample similar to those of Jessica? Suggest reasons for this.
- 5.** Compare the findings from your sample to those of your classmates (who have collected a different simple random sample). Are they similar?
- 6.** Comment on the accuracy of the other information Jessica provided in the article. Remember that Jessica has based her article on one simple random sample.
- 7.** Suggest ways that you could make your data more accurate.

Task Two: Investigating Jessica's other work

- 8.** Work together with the rest of your classmates to conduct a survey of your class and compare this to the data from the random sampler. Is your class a typical Australian class? Explain.
- 9.** Find out how to make a box and whisker plot. Use the information you've gathered to create two box and whisker plots, one for the random sample and the other for your class data. Compare the two plots, and write a report of your findings.